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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,582	09/18/2001	Jimmy D. Thornton	S-96,894	9380

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EXAMINER
COCKS, JOSIAH C

ART UNIT	PAPER NUMBER
3743	10

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/955,582	THORNTON ET AL.	
	Examiner	Art Unit	
	Josiah C. Cocks	3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *amendment filed 5/29/03* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Receipt of applicant's amendment filed 5/29/03 is acknowledged. As applicant correctly noted in the response, any reference in the prior Office Action to *Koroneisen et al.* was referring to *Kroneisen et al.*

Claim Suggestions

2. In claim 1, 11, and 14 applicant recites "in combustion zone" in the preamble of the claims. For grammatical clarity it is suggest that applicant --in a combustion zone--. In claim 12, it is suggested that applicant recite --in a combustion zone of a burner assembly-- rather than --in the combustion zone of the burner assembly--.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kroneisen et al.* (US # 4,410,854) in view of *Collings et al.* (US # 5,073,753) and *Kostiuk et al.* (US # 5,588,825).

Kroneisen et al. disclose an apparatus and method for the monitoring and control of the combustion process in a combustion system including a flame ionization detector which includes a fuel nozzle (8), means for supplying fuel to the nozzle at a first rate, means for supplying oxidizer to the nozzle at a second rate (see col. 3, lines 47-54), a sensor including a first electrode centered in the fuel nozzle (note that the nozzle 8 functions as a central electrode, see col. 2, lines 64-68) and a second electrode (15) radially surrounding the first electrode wherein both electrodes are present in the combustion chamber, a means for applying voltage between the electrodes (see col. 3, lines 46-47). *Kroneisen et al.* further discloses that the second electrode (15) is electrically insulated by means of spacers (17) formed of a ceramic material (See col. 3, lines 38-40).

In regard to the limitation, in claim 1, of an ignition means, while *Kroneisen et al.* does not explicitly disclose an ignitor it would be inherent that in functioning as a flame ionization device requires an ignition means for generating a flame. Further, as noted in *Collings et al.*,

flame ionization devices are understood to include ignition devices for the purpose of generating a flame (see 16 of *Collings et al.*).

In regard to the limitations of the claims reciting a "hydrocarbon-based fuel," *Kroneisen et al.* does not specifically recite a "hyrdocarbon-based fuel" however, *Kroneisen et al.* does recite the use of a fuel gas. It is well understood in the art that a common fuel gas is natural gas, which is a "hydrocarbon-based fuel." Accordingly, OFFICIAL NOTICE is taken as to the use of natural gas as a fuel gas. Alternatively, it is noted that that the flame ionization detector of *Collings et al.* may be used with liquid or gaseous hydrocarbon fuels (see col. 1, lines 15-35) and that if a liquid fuel is used such fuel may be petrol, which is well known in the art to be a "hydrocarbon-based fuel." Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the fuel of *Kroneisen et al.* would be a "hydrocarbon-based fuel" as such fuel is well known in the art in applications where stringent emission restrictions are considered (see *Collings, et al., col.* 1, lines 10-14).

Kroneisen et al. possibly does not disclose explicitly a means for determining the magnitude of a current and that the change in magnitude is proportion to the amount of hydrocarbon ions in the combustion process, or that the nozzle is a lean premix fuel combustion nozzle.

In regard to claim 5, *Kostiuk et al.* teaches a combustion assembly using a lean premix fuel combustion nozzle (see Fig. 1). It would have been obvious to a person of ordinary skill in the art to modify the nozzle of *Koroneisen et al.* to be a lean premix fuel nozzle such as that of *Kostiuk et al.* as is it well known that the use of lean premixed fuels in burners result in the production of a lower amount of NOx pollutants (see *Kostiuk et al.,* col. 1, lines 13-24).

In regard to claims 1-16, *Collings et al.* teaches a flame ionization device in the same field of endeavor as *Kroneisen et al.* wherein *Collings et al.* teaches that it is well known in the art that flame ionization devices are used to measure and control combustion parameters and that it is understood that during the combustion of hydrocarbon fuels, magnitude of the current between two electrodes is proportional to the rate of supply of hydrocarbon ions (see col. 1, lines 15-35). Therefore, it would have been obvious to a person of ordinary skill in the art that the flame ionization device of *Kroneisen et al.* would include the well known means for measuring current that is proportional to the change in the amount of hydrocarbon ions as taught by *Collings et al.* in order to obtain accurate and consistent measurements of the combustion parameters (see C*ollings et al.*, col. 9, lines 61-65).

Response to Arguments

6. Applicant's arguments filed 5/29/03 have been fully considered but they are not persuasive. Applicant argues in the response that applicant's apparatus is intended for *in situ* monitoring and control and amended the independent claims to recite in the preamble "in combustion zone of a burner assembly." However, is noted that in both the *Kroneisen et al.* and *Collings et al.* references show a flame ionization apparatus and process that includes a burner nozzle and a combustion zone. These flame ionization devices represent combustion systems in and of themselves. Therefore, applicant's amendments to the claims do not distinguish the claims over the cited prior art. Further, even if applicant's claims were regarded as requiring monitoring and control *in situ* of a separate combustion system these recitations are regarded as simply statements of intended use. A recitation of the intended use of the claimed invention must

result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Both the devices of *Kroneisen et al.* and *Collings et al.* would be capable of monitoring and controlling a combustion process in a combustion zone of a burner assembly of a combustion system.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Josiah Cocks whose telephone number is (703) 305-0450. The examiner can normally be reached on weekdays from 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett, can be reached at (703) 308-0101. The fax phone numbers for this Group are (703) 308-7764 for regular communications and (703) 305-3463 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

jcc
July 31, 2003

JOSIAH COCKS
PATENT EXAMINER
ART UNIT 3743